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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

With the recent completion of its large scale instrument contract for nuclear plants of the USAEC, Taylor Instrument Co., Rochester, N.Y., anticipates that its regular business will take up the slack signalized by final shipments under this contract. The USAEC contract was "substantial", and for almost three years had accounted for a good portion of Taylor's billings, although in the fiscal year ended July 31, 1955, company earnings were $1,190,690 compared to $1,265,901 for the previous fiscal year. (Other FINANCIAL news, p. 2 this LETTER.)

A nuclear instrumentation department has been set up by Fairchild Camera & Instrument Corp., Syosset, N.Y., and will be under the direction of Harold E. Debolt, formerly with the nuclear power division of the U.S. Navy's Bureau of Ships. Products which Fairchild will consider for development and manufacture include radiation monitoring equipment; control rod drive mechanisms for nuclear reactors; neutron detectors; and associated temperature, pressure and flow controls. Fairchild also plans to offer as a "package" complete reactor controls and instrumentation systems for commercial nuclear power projects. (Other MANUFACTURING news, p. 3 this LETTER.)

Plans are now underway for the Fifth Scintillation Counter Symposium which will be held in Washington, D.C., Feb. 28-29, 1956. Topics tentatively selected for discussion include multipliers and circuitry; scintillators; spectroscopy and particle identification; and special problems and techniques. Sponsorship will be by the Institute of Radio Engineers' professional group on nuclear science; American Institute of Electrical Engineers; and National Bureau of Standards. Chairman of the planning committee is J. Kuper, Brookhaven National Lab., Upton, N. Y. (Other ORGANIZATION & MEETING news, p. 5 this LETTER.)

A separate division known as Atomics International has been established by North American Aviation, Downey, Calif., to handle all of the company's nuclear engineering and manufacturing operations. North American, presently holding various USAEC and other nuclear contracts, now employs about 800 scientists, engineers, technicians, and administrative people for these nuclear projects. (Other BUSINESS news, p. 2 this LETTER.)

A new type of radiation shielding brick, trade-named Raysist Shielding Logs, is being offered by Knapp Mills, Inc., Wilmington, Dela. In use, the units are stacked vertically to form shield walls. By rotating the crescent shaped logs on their axis, these shield walls can follow any geometric path. The firm claims that horizontal and vertical radiation leakage is effectively eliminated by these logs; further, that fewer pieces are required for a given area. (Other NEW PRODUCTS, PROCESSES, p. 3 this LETTER.)

Vitro Uranium Corp. (div. of Vitro Corp. of America) has signed a 3-year contract to purchase the uranium output of Atlas Corp.'s Hidden Splendor Mining Co. properties in Emery County, east central Utah. The contract specifies that Hidden Splendor will deliver a minimum of 5,000 tons of uranium ore monthly to Vitro.

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ATOMIC ENERGY BUSINESS REPORTS...

RADIATION SAFETY CODE SET UP IN NEW YORK:- The first comprehensive state safety code governing firms where ionizing radiation is present goes into effect in New York State this December 15th. Major provisions of the code, which will be enforced by the safety and hygiene staffs of the state's Department of Labor, require that:- (1) All installations and services where radiation exists must be registered. (2) Each installation must have a radiation safety supervisor and radiation safety officer. (3) An overdose of radiation by an employee must be reported to the state's Industrial Commissioner. (4) Precaution signs, proper labelling, etc., must advise of radiation hazards. It is estimated that 150,000 workers in New York State are in industries where exposure to ionizing radiation is possible.

EXPANSION PLANNED BY INDUSTRIAL FIRM:- Options on a 1,585-acre tract of land near San Francisco, Calif., have been taken by General Electric Co., Schenectady, N.Y., as a possible future site for a G-E nuclear development facility. Francis K. McCune, G-E vice-president and general manager of the firm's atomic products division, said the long-term purpose of the facility would be work in the application of atomic energy in a wide range of commercial applications. Initially, an important project would be support of work on a 180,000-kw. nuclear power plant which G-E will build for Commonwealth Edison in the Chicago area.

ATOMIC ENERGY FINANCIAL REPORTS...

ADDITIONAL STOCK AUTHORIZED BY NUCLEAR PRODUCTS FIRM:- Stockholders of Tracerlab, Inc., voted last week at a special meeting in Boston to authorize an additional 200,000 shares of stock which may be issued or sold from time to time at the discretion of the firm's board of directors. The firm now has 700,000 shares authorized or issued. Purpose is to provide long-term financing, to acquire suitable properties, and to expand the firm's foreign operations. (Tracerlab is now building in Waltham, Mass., new facilities to replace its present six buildings in downtown Boston.)

DIVIDEND IN URANIUM STOCK MADE BY AIRCRAFT COMPANY:- A dividend of twenty-four shares of common stock of Glenn Uranium Mines, Ltd., of Canada, for each 100 shares of Bellanca common, was voted by the directors of Bellanca Aircraft Corp. at a meeting in New York last fortnight. The distribution had a market value of approximately 41¢ a share, when declared, and follows Bellanca's policy of declaring tax-free distributions of securities of companies acquired by Bellanca.

FIRMS IN URANIUM PROCESSING SHOW GAINS:- Harshaw Chemical Co., which has long been doing processing of uranium, operating a feed materials plant for the USAEC, etc., is believed to have ended its fiscal year on September 30th last with sales and earnings at new record highs and at about the forecasted $60 million volume and $5 per share net earnings. In fiscal 1954 Harshaw earned $4.83 a share on sales of $4 million..... Production from Rico Argentine Mining Co.'s new sulfuric acid plant at Rico, Colo., is hitting 175 tons daily, company stockholders were told at the annual meeting of the firm in Salt Lake City last week. Rico is selling the acid to the Monticello mill of the USAEC; to the Naturita and Durango, Colo., uranium mills of Vanadium Corp. of America; and to the Shiprock, Ariz., uranium mill of Kerr-McGee Oil Industries, Inc. Rico Argentine is also producing and shipping uranium ore from its own properties.

ANALYSES OF FIRMS IN NUCLEAR WORK AVAILABLE:- A review of Worthington Corp. (doing research in nuclear powered aircraft, etc.) may be obtained from Bruns, Nordeman & Co., 52 Wall St., NYC..... An analysis of ACF Industries, Inc. (power supplies for nuclear projects by its electronics division) may be obtained from Eastman, Dillon & Co., 15 Broad St., NYC..... A discussion of Anaconda Co. (doing uranium mining and operating uranium processing mill in Western U.S.) may be obtained from Oppenheimer, Vanden Broeck & Co., 120 Broadway, NYC..... A study of Phillips Gloeilampenfabrieken (leading Dutch industrial firm in nuclear work) is available from Smith, Barney & Co., 14 Wall St., NYC.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...

NEW PRODUCTS FROM MANUFACTURERS:- New scintillation probe for radioisotope counting is said to make it possible to secure for the first time three dimensional radiation patterns. This is achieved by supplying with the probe a focusing collimator with a 2-inch focal length with a sharp focal point. A focused light beam on the axis of the collimator is included for positioning the probe. The crystal is shielded in all directions by using a light pipe 2-inches long with a density one-half that of lead. --Detectolab, Inc., Chicago 26, Ill.

The recently discovered, first long-lived, radioisotope of aluminum, aluminum-26, is now offered by this firm. The isotope, which decays by positron emission, is available as the oxide. --Nuclear Science and Engineering Corp., Pittsburgh 36, Pa.

PRODUCTS FOR URANIUM PRODUCTION:- An enormous boost to the production of bone glue in the Union of South Africa is the result of its use as a filter aid in the uranium extraction process at the Union's gold mines. (Residues after gold extraction are re-pulped and mixed with dilute sulfuric acid. When the uranium has been dissolved, the acid treated pulp is filtered on stainless steel rotary drum filters, but the rate of filtration is extremely slow. It is at this point that the animal glue is added to speed up the filtration.) The many uranium refining plants now operating in the Union, and the subsequent glue demand, has encouraged existing glue factories to enlarge their facilities.

PRODUCTS FOR NUCLEAR PROJECTS:- A method by which 95% nitrogen-15, a long-sought ingredient for nuclear power reactors, could be produced commercially for $500.00 a pound, has now been devised by T.I. Taylor and W. Spindel of Columbia University's chemistry department, working under a USAEC research grant. Previously, 60% nitrogen-15 had been the highest concentration produced in quantity. In this form it is sold for $175,000.00 a pound. Designers of nuclear power reactors had estimated that nitrogen-15 (in 95% concentration) could not be used in reactors unless its cost were $500.00 a pound or less. The method of Drs. Spindel and Taylor for producing the isotope uses an exchange reaction between nitric oxide gas and a solution of nitric acid.

The request of New York University for the loan of two tons of natural uranium metal and a neutron source from the USAEC has now been approved by the Commission. NYU plans to use the material in a subcritical assembly--a facility in which a neutron flux can be produced but which is incapable of sustaining a nuclear fission chain reaction. Neither controls, expensive shielding or heat removal equipment is necessary in such a facility which is used for many laboratory exercises in nuclear engineering.

A nuclear reactor is expected to be available next year in East Germany, Soviet Zone, with necessary apparatus and equipment being produced in that Zone by Transformatoren -und Rontgenwerke, Dresden. This firm is understood to be specializing in the production of nuclear instruments, as directed by the U.S.S.R. Ministry of Interior, and is reportedly supplying such instruments to the U.S.S.R., Czechoslovakia, China, etc.

PRODUCTS & METHODS WITH MEDICAL APPLICATIONS:- A neutron activation analysis technique, that permits physicians to obtain human tissue samples more frequently and with less pain to the patient, was described by L. Reiffel, supervisor of nuclear physics at Armour Research Foundation, in a paper presented at the 13th annual meeting of the midwestern section of the American Federation for Clinical Research, held at Northwestern University, Chicago campus. Dr. Reiffel said the great sensitivity of the new technique allows measurements with milligram samples obtained by needle biopsy procedures, rather than requiring the usual surgical biopsy methods to obtain tissue.

The 21 different alkaloids in the Rauwolfia serpentina root (used for treating hypertension) are being investigated by radioisotope tracer methods at the Squibb Institute for Medical Research, Paul Numeroff, director of Squibb's radioisotope laboratories, told a joint meeting in New York recently of physicians and pharmacists held by the County Medical Societies and Pharmaceutical Council of Greater New York. Dr. Numeroff said Squibb hoped to find by tracer methods which of the 21 alkaloids are active in treating disease.

CONTRACT AWARDS & CONSTRUCTION NEWS...at nuclear projects...

DESIGN SUB-CONTRACT AT TEST REACTOR AWARDED:- Kaiser Engineers (div. of Henry J. Kaiser Co.) Oakland, Calif., have sub-contracted to General Electric Co. the design for the reactor core and facilities within the pressure vessel of the engineering test reactor at the USAEC's national reactor testing station, Idaho Falls, Idaho. Kaiser Engineers hold the prime USAEC contract for architect-engineering and construction of this reactor, estimated to cost $15 million. Under its sub-contract from Kaiser, G-E will design the reactor's nuclear core, testing facilities, controls, instrumentation, and structure. (The reactor, when completed, will be used to test, in high radiation fields, materials related to the development of reactor cores, fuel assemblies, and other components of reactor projects. It will provide the U.S. with irradiation facilities larger than any now available.)

WORK ON RADIOLOGICAL HOT CELL ADVANCED:- R. V. Harty Company, Inc., Detroit, Mich., who designed and are constructing the radiation test cell at the U.S. Air Force's Wright Air Research & Development Command, Dayton, O., expect completion of the job by next month. Under Harty's $142,000.00 contract, two rooms are being built, 7-ft. x 7½-ft. x 12-ft. A three foot thick dividing partition may be rolled into the chamber's back wall to make one large chamber. Wright will use the facility mainly to determine the effects of radiation on aircraft materials, using cobalt-60 as the radiation source.

RESEARCH CONTRACTS AWARDED:- Eight new research contracts, and thirty-three renewals, for non-secret research in biology, medicine, biophysics, and radiation instrumentation, were recently awarded by the USAEC to a number of universities and private institutions. Renewals include the contract held by the Radio Corp. of America for multiplier phototube development; RCA has had this project under way at its David Sarnoff Research Laboratories, Princeton, N. J. In the field of medicine, Health Research, Inc., was awarded a new contract to investigate the role of serum erythropoietic factor in the anemia of malignancy. A new project in biophysics was an award to Columbia University for studies of circulation of the deeper oceanic water. Columbia's Lamont geological observatory will administer this contract. Biology contract renewals included an award to the University of California to continue investigations in the use of radioactive tracers to study the mode of action in organic insecticides.

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Prospecting for Atomic Minerals, by A.W. Knoerr and G.P. Lutjen. Includes sections on claim staking, mining laws, radiation map reading, etc. 211 pages. --McGraw-Hill Book Co., New York 36, N.Y. ($3.95).

Nuclear Physics, by Irving Kaplan, Brookhaven National Laboratory. A text for the advanced undergraduate or beginning graduate course. Also useful for the man with training in physics or physical chemistry. 609 pages. --Addison-Wesley Publishing Co., Cambridge 42, Mass. ($10.00).

Atomic Energy Research at Harwell, by K.E.B. Jay, principal scientific officer, Harwell. Official release of U.K. Atomic Energy Authority, describing the work done at the Atomic Energy Research Establishment, Harwell, Eng., between 1951 and 1954. Continues the account of work there from the point at which it was left in the first book on Harwell titled "Harwell--The British Atomic Energy Establishment". 144 pages. --Philosophical Library, Inc., New York 16, N.Y. ($4.75).

Handbook of Federal Regulations Applying to Transportation of Radioactive Materials. Regulations of the various government agencies, as they apply to radioactive materials. No. Y 3.At 7:6 T68. (25¢)..... Index to Hearings before Joint Committee on Atomic Energy, 84th Congress, 1st Session, on development, growth and state of atomic energy industry. No. Y4.At 7/2:At 7/12/ind. 10¢..... Meteorology and atomic energy; with bibliographies. Prepared by U.S. Weather Bureau No. Y3.At 7: 2M56/2. ($1.00).....Radiation Hazards in Firefighting; with bibliography. No.Y 3. At 7:3/4. (35¢)..... Introduction to Radioactive Fallout; Instructor's Guide. No. FCD 1.6/5:19-1. (15¢) --Superintendent of Documents, Wash. 25, D.C.

NOTES:- The following reprints of papers presented at the recent Geneva, Switzerland, Atoms for Peace Conference, may be obtained from organizations indicated: (1) Protection of Workers Against Ionizing Radiations; from International Labor Office, Geneva, Switzerland (50¢). (2) Research Reactors. A 452 page volume, prepared by USAEC for delegates to Conference, describing U.S.'s nuclear reactor program. ($2.00). Supt. of Documents, Wash. 25, D.C.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES: Uranium ore production in the U.S. will reach its peak in 1957 or 1958, and decline to one-half, or even less, after 1959 or 1960, Dean Eardley, of the College of Mines and Mineral Industries, University of Utah, told the recent annual convention of the American Mining Congress in Washington. The convention was told that the U.S. stockpile of uranium metal should reach 52,000 tons this year, and may quadruple in the next 8-10 years. By 1960, the U.S. will have an estimated 87,000 tons, and by 1965 the stockpile should reach 132,000 tons.

CANADA:- A formal sales contract has now been given Consolidated Denison Mines by Eldorado Mining & Refining, Ltd., the Canadian government purchasing agency. It is a premium price contract, because of the low grade ore on the Denison properties, and calls for a total of $182,250,000 worth of precipitates to be delivered to Eldorado by Mar. 31, 1962; Denison must start production no later than Apr. 1, 1957. Meanwhile, operating on the basis of the letter of intent Denison had been given by Eldorado, which preceded this formal contract, Denison has had plans drawn up for construction of a 5,700-ton capacity acid leach and precipitation plant. It is believed that this will be the largest individual treatment plant in the world devoted solely to handling uranium ores. Denison is obtaining the $37 million to bring the operation into production through a bond issue which is being floated for that purpose.

ATOMIC PATENT DIGEST...new grants in the nuclear field...

Radiation sensitive glass. Comprises (in part) a normally blue glass which is progressively bleached when subjected to high energy radiation. The glass consists of about 20 parts by weight of sodium tetraborate; about 10 parts by weight of boron trioxide; and about 1.5 parts by weight of sulfur. U. S. Pat. No. 2,722,519 issued Nov. 1, 1955; assigned to United States of America, Department of the Army. (Inventors: Kurt O. Otley and W. A. Weyl.)

Means for measuring the density of silt deposits at the bottom of bodies of water. Comprises (in part) a source of beta radiation, with a detector in close proximity. The response of the detecting means, which is inversely proportional to the density of the silt, is used as an index of the silt density. U.S. Pat. No. 2,772,609 issued Nov. 1, 1955; assigned to United States of America (USAEC). (Inventors: G.W. Morgan, O.M. Bizzell, G.G. Manov, and J.W. Hitch.)

Method of prospecting which comprises (in part) measuring the intensity of natural gamma rays emitted from earth formations of certain locations along the earth, finding their energy, and by a process of comparison charting the energy values. U. S. Pat. No. 2,722,610 issued Nov. 1, 1955; assigned to The Texas Co., New York. (Inventor: Gerhard Herzog.)

X-ray apparatus. Comprises (in part) an adjustable shutter device for use in conjunction with an X-ray tube to regulate the shape and size of the effective X-ray beam; and associated apparatus. U. S. Pat. No. 2,722,611 issued Nov. 1, 1955; assigned to Keleket X-Ray Corp., Covington, Ky. (Inventor: W. H. Haupt.)

Processes of producing uranium trioxide. In part, the process which comprises washing uranium tetraoxide with ammonium hydroxide, separating the uranium tetraoxide, and heating to convert to uranium trioxide. U. S. Pat. No. 2,725,181 issued Nov. 8, 1955; assigned to United States of America (USAEC). (Inventor: C. E. Larson.)

MEETINGS, CONFERENCES...on nuclear subjects...

MEETING:- "Applications of Radioactivity in the Food and Processing Industries", a symposium held recently in Boston by Tracerlab, Inc., nuclear products manufacturer, drew over 200 engineers and research leaders from 26 states in the U.S. and 4 foreign countries. The complete abstracts of the symposium may be obtained on request from Tracerlab, Inc., 130 High St., Boston, Mass.

CONFERENCE:- The use of welding in nuclear reactors will be considered at the Midwest Welding Conference planned by Armour Research Foundation for next Feb. 1-2 and being sponsored jointly by the Foundation and the American Welding Society.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

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